# USEPA Grant-Funded Cleanup
# 80-100 Charlotte Street
# Rochester, New York

Prepared by City of Rochester
Division of Environmental Quality (DEQ)
December 2006

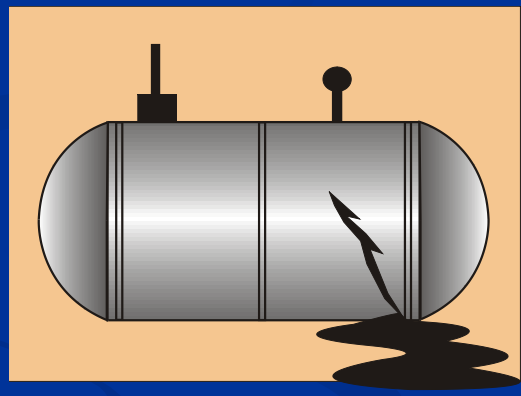

City of Rochester
BROWNFIELD
CLEANUP PROJECT
80-100 Charlotte Street
Project Funding: USEPA Region 2
Project Consultant: Day Environmental, Inc.
For Information Call:
City Project Manager 428-6649


Pictometry® Electronic Field Study, Version 2.4, 2002


80-100 Charlotte Street
14-60 Charlotte Street
Pictometry® Electronic Field Study, Version 2.4, 2002

# 80-100 Charlotte Street Background Information

- Former Electrical Contractor, Electric Motor Repair & Electrical Warehouse Facility
- Petroleum-Impacted Soil & Groundwater in Vicinity of Former Gasoline UST System Operated by Former Owner
- City-Owned Since 2003.
- NYSDEC Spill Number 0270474
- USEPA Assistance ID No. BF97298603
- City Awarded $200,000 in USEPA Grant Funds for Cleanup of Petroleum-Contaminated Media



# Proposed Future Use

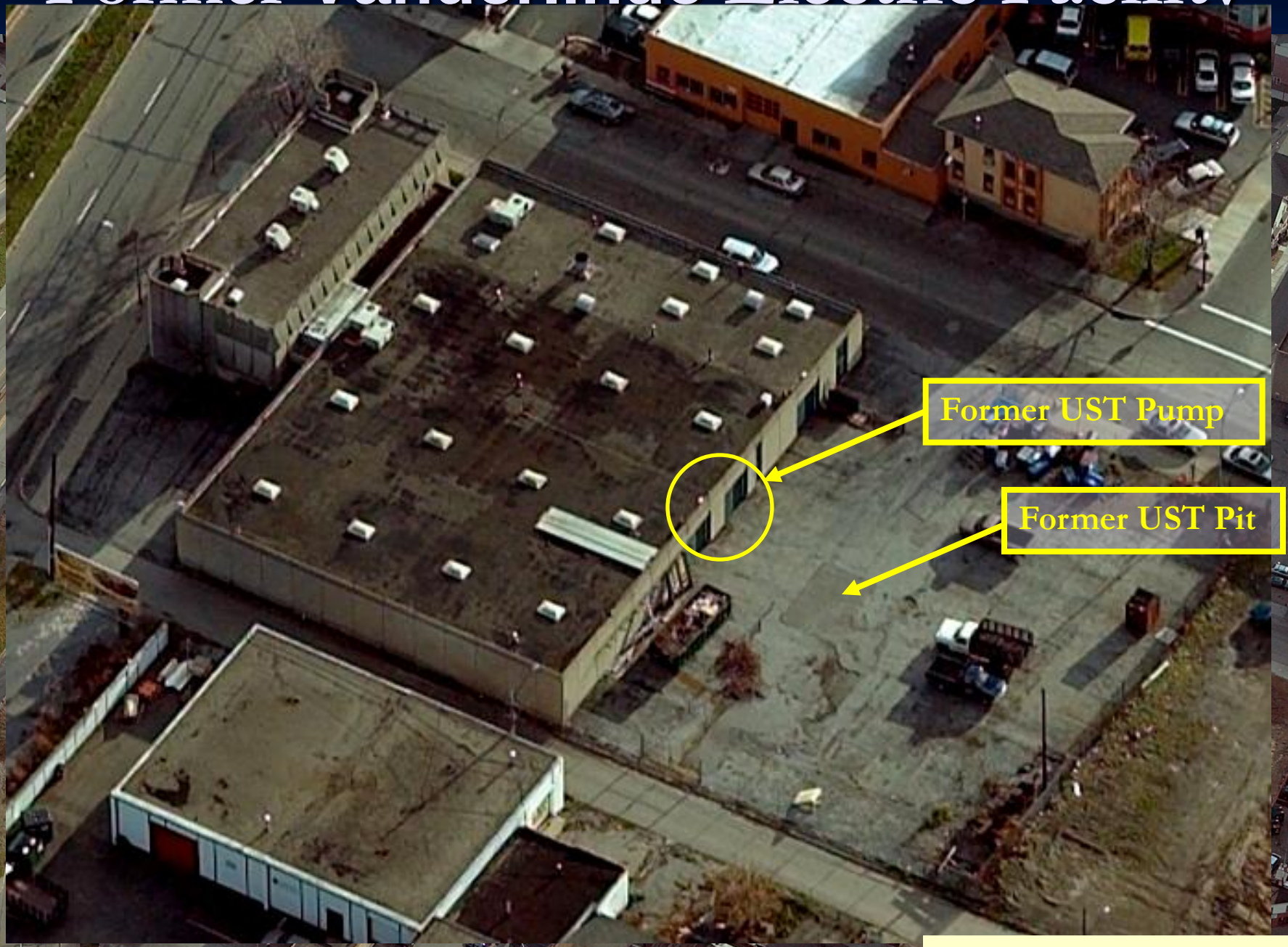
- Not Definitively Known at this Time.

- Concepts for Reuse Include:

  - Combination of Commercial & Multi-Family Residential.

  - Apartment Complex with full basement parking garage.

# Former Vanderlinde Electric Facility



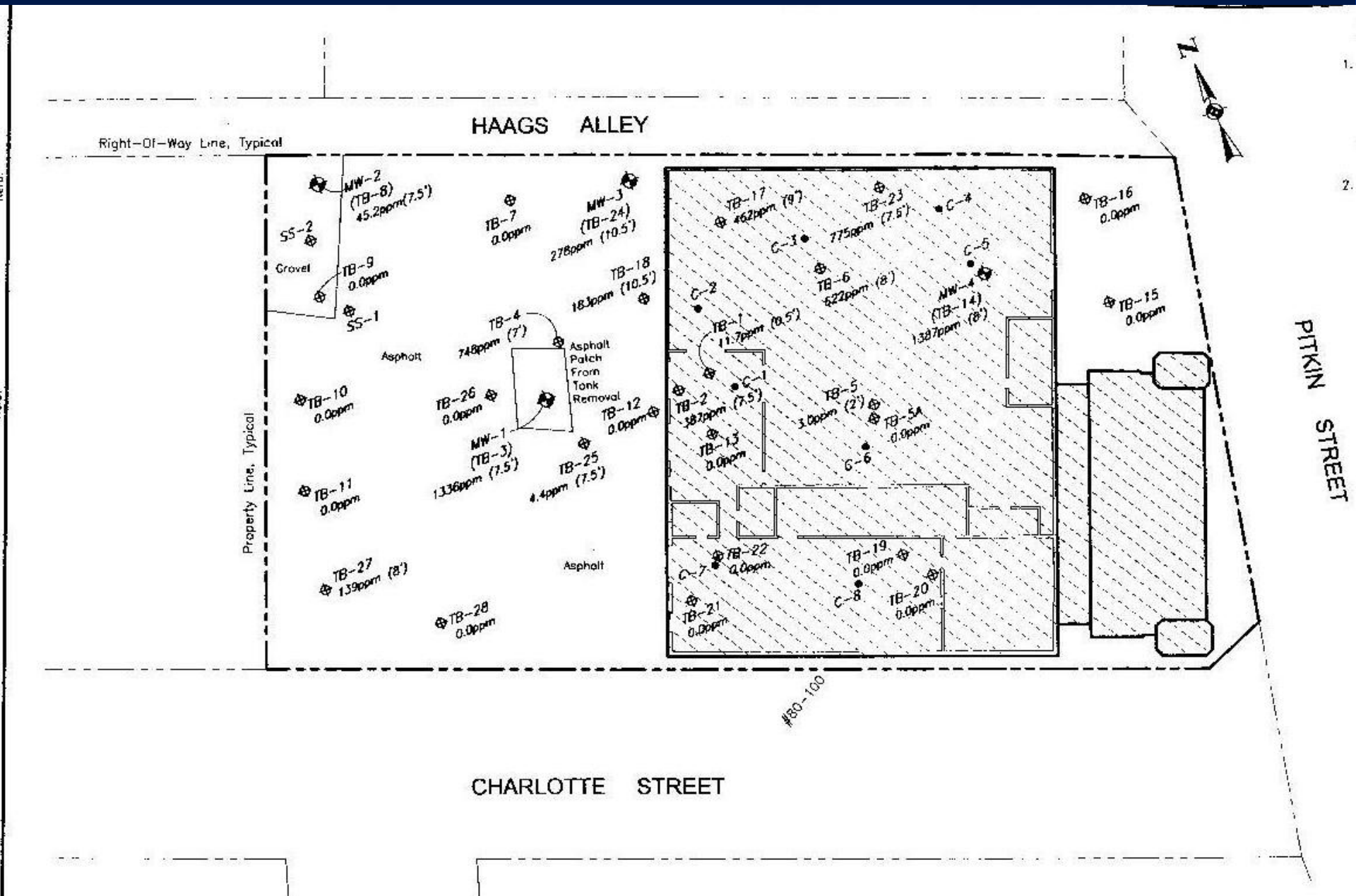

Pictometry® Electronic Field Study

# Existing Subsurface Conditions

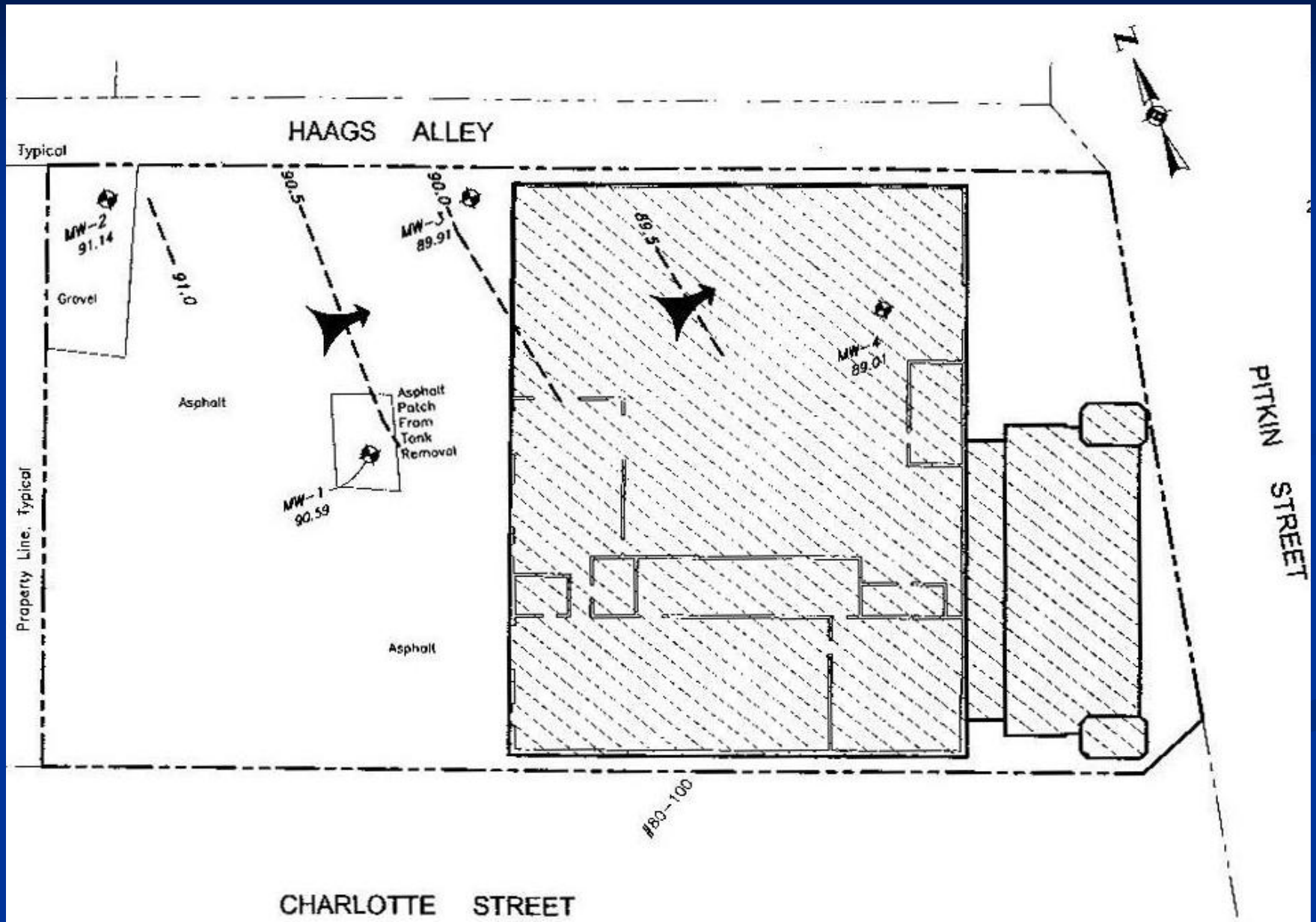
- Miscellaneous Fill Materials From Previous Developments – Average Thickness ~4.7 feet.

- Petroleum Plume Associated with the Former On-Site Gasoline UST System:
  - Petroleum contamination detected in proximity to and hydraulically downgradient of former gasoline UST.
  - Petroleum contamination generally present in soil in an approximately 2-foot to 4-foot layer immediately above bedrock.
  - Bedrock ~8 to 9 feet BG.
  - Groundwater present in overburden.  Groundwater may be present at overburden / bedrock interface or in top of rock.
  - Groundwater Flow direction is Generally East.

# Previous Phase II ESA Sampling Locations



# Groundwater Flow Direction



**80 – 100 CHARLOTTE STREET**
**ROCHESTER, NEW YORK**

## SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS IN SOIL SAMPLES

## RESULTS REPORTED IN UG/KG OR PARTS PER BILLION (PPB)

| DETECTED COMPOUNDS | RECOMMENDED SOIL CLEANUP OBJECTIVES (1) | 2957-11/ TB-8 (7') | 2957-12/ TB-27 (8.5') | 2957-13/ TB-3 (7-8') | 2957-14/ TB-4 (7.5') | 2957-15/ TB-2 (7.5-8') | 2957-16/ TB-24 (8-10') | 2957-18/ TB-23 (9') | 2957-20/ TB-14 (8') |
|---|---|---|---|---|---|---|---|---|---|
| Ethylbenzene | 5500 | ND | ND | 275 | 13.8 | ND | ND | 5440 | **34600** |
| tert- Butylbenzene | 10000 | ND | ND | ND | ND | ND | ND | ND | **20800** |
| Total Xylenes | 1200 | ND | ND | 955 | 27.7 | ND | ND | **25130** | **99400** |
| Isopropylbenzene | 2300 | ND | ND | 205 | ND | ND | ND | 1720 | **9030** |
| n-Propylbenzene | 3700 | ND | ND | 784 | ND | ND | ND | **8480*** | **40800** |
| 1,3,5-Trimethylbenzene | 3300 | 10.6 | ND | 2020 | ND | ND | ND | **13200*** | **60500** |
| 1,2,4-Trimethylbenzene | 10000 | 44.9 | 20.5 | 5460 | 52.7 | ND | ND | **42500*** | **217000** |
| sec-Butylbenzene | 10000 | ND | ND | 88.7 | ND | ND | ND | 1200 | 5730 |
| p-Isopropyltoluene | 10000 | ND | ND | 312 | ND | ND | 16.2 | 2940 | **13800** |
| Naphthalene | 13000 | ND | ND | ND | ND | ND | ND | 323 | ND |
| Total TICS | NA | 497.2 | 171.8 | NT | 1491.5 | 4072.5 | 4706 | NT | NT |
| Total VOC's | 10000 | 552.7 | 192.3 | **10099.7** | 1585.7 | 4072.5 | 4722.2 | **100933** | **501660** |

(1) = Recommended soil cleanup objectives as referenced in the January 1994, Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Cleanup Levels as amended by NYSDEC Table 1 dated December, 2000.

* = Denotes estimated value. Sample concentration exceeds calibration range.

NA = Not Available

NT = Not Tested

ND = Not detected above reported analytical laboratory detection limits

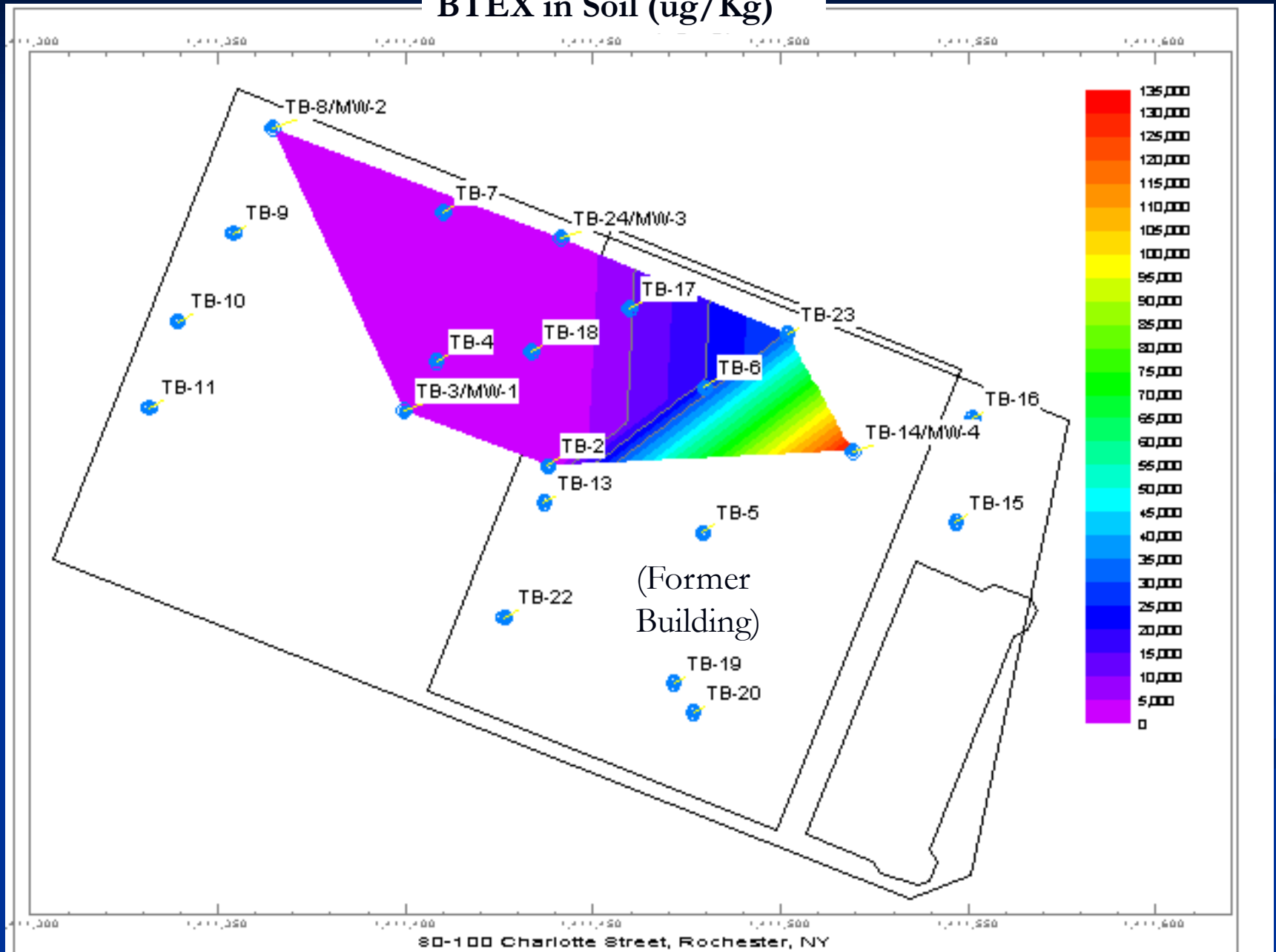
# 80 – 100 CHARLOTTE STREET
# ROCHESTER, NEW YORK

## SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER SAMPLES

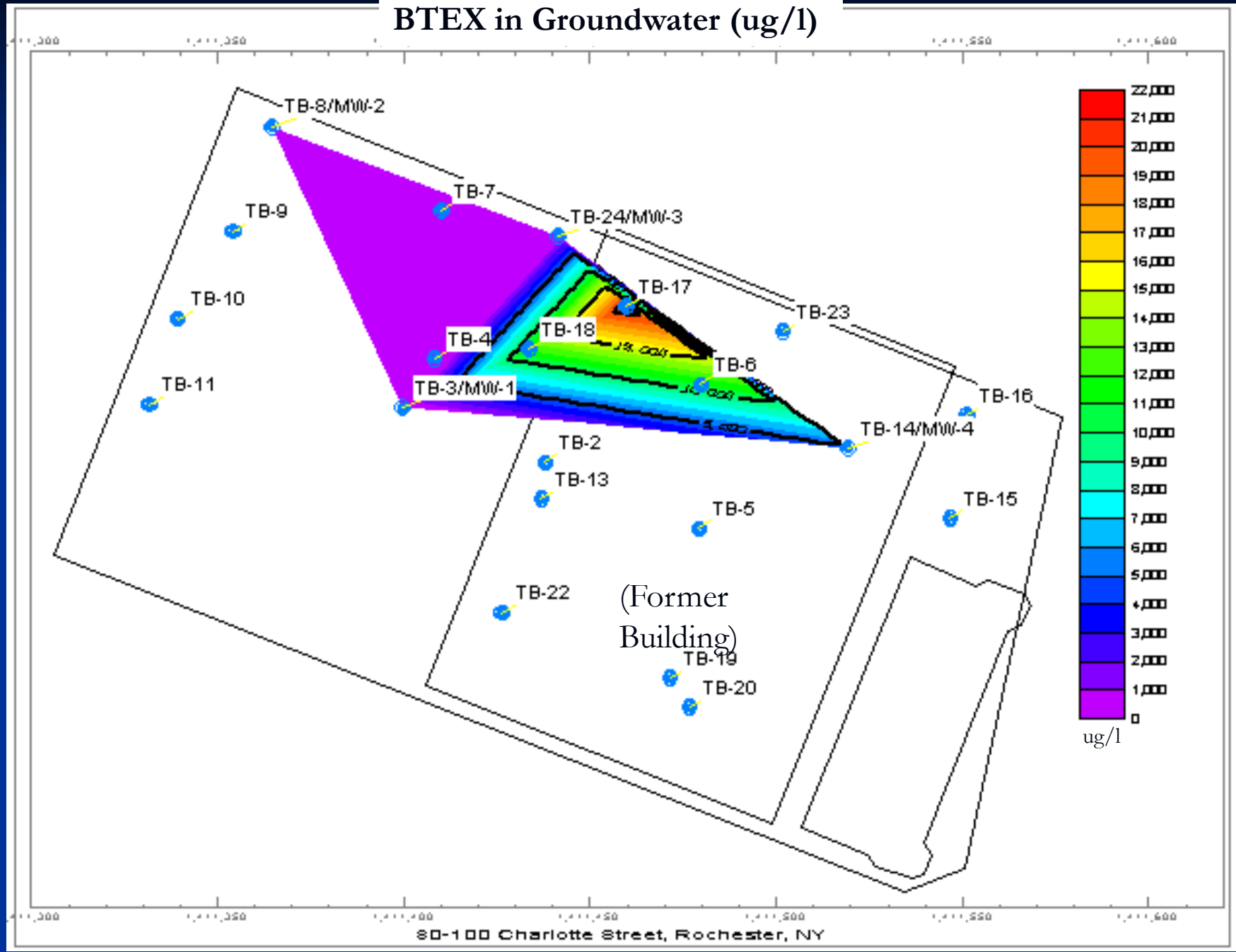
## RESULTS REPORTED IN UG/L OR PARTS PER BILLION (PPB)

| DETECTED COMPOUNDS | RECOMMENDED SOIL CLEANUP OBJECTIVES (1) | 2957-21/ TB-17* | 2957-MW-1 | 2957-MW-2 | 2957-MW-3 | 2957-MW-4 |
|---|---|---|---|---|---|---|
| n- Butylbenzene | 5 | ND | ND | **54.5** | **11.1** | ND |
| Benzene | 1 | ND | ND | ND | **1.22** | ND |
| Ethylbenzene | 5 | **4860** | ND | 4.66 | **5.62** | **1570** |
| tert- Butylbenzene | 5 | ND | ND | ND | ND | **337** |
| Total Xylenes | 5 | **16450** | **6.74** | **5.78** | **10.9** | **3260** |
| Isopropylbenzene | 5 | **1760** | ND | **16.9** | 3.97 | **209** |
| n-Propylbenzene | 5 | **7290** | 2.04 | **45.0** | **8.80** | **589** |
| 1,3,5-Trimethylbenzene | 5 | **8130** | 2.34 | **20.6** | ND | **602** |
| 1,2,4-Trimethylbenzene | 5 | **32800** | **8.13** | **80.6** | **8.41** | **2530** |
| sec-Butylbenzene | 5 | **1040** | ND | **24.7** | **5.79** | **1510** |
| p-Isopropyltoluene | 5 | **1920** | ND | **14.2** | ND | ND |
| Total VOC's | NA | 74250 | 19.25 | 266.94 | 55.81 | 10607 |

# BTEX in Soil (ug/Kg)



# BTEX in Groundwater (ug/l)



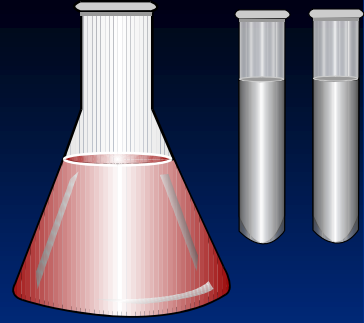
# After Building Demo

After Demo, Use of Site As Surface Parking Lot

# Approved CAP- Remedial Activities

- Waste Characterization Study
- Site Preparation, Security, & Site Control
- Source / Soil Removal, Air Monitoring & Off-Site Disposal
- Confirmatory Soil Sampling & Analysis
- Backfilling
- Post-Source Removal Groundwater Monitoring
- Soil Vapor Assessment
- Quality Assurance / Quality Control
- Remedial Construction / Closure Report

# Waste Characterization Study

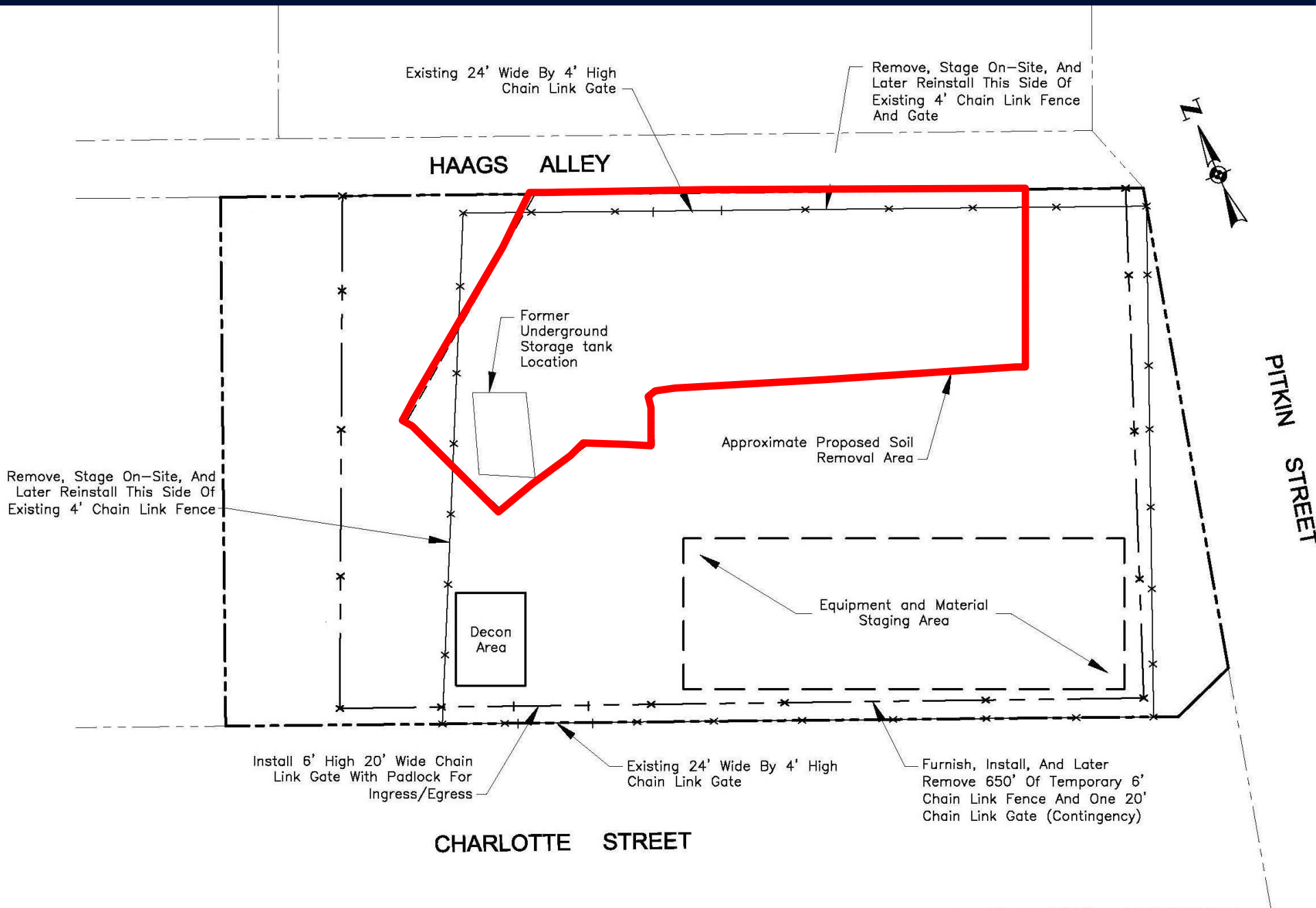


- Advance Sixteen (16) Test Borings To Further Characterize The Soil For Disposal And Define The Removal Areas.
- Up To Eight (8) Soil Samples Collected And Analyzed For NYSDEC Spill Technology and Remediation Series (STARS) VOCs & 20 TICS.
- Two Soil Samples Exhibiting The Greatest Potential For Petroleum Contamination Will Be Analyzed For Ignitability, TCLP metals and PCBs.

# Waste Characterization Test Boring Locations

# Site Preparation, Security, & Site Control

- **Perimeter Fencing Around Complete Parcel**
- **Locking Gate for Site Access**
- **Temporary Fencing Around Area #1 Excavation**
- **Decon Area**
- **Equipment & Material Staging Area**


Existing 24' Wide By 4' High Chain Link Gate
Remove, Stage On-Site, And Later Reinstall This Side Of Existing 4' Chain Link Fence And Gate
HAAGS ALLEY
N
Former Underground Storage tank Location
Approximate Proposed Soil Removal Area
PITKIN STREET
Remove, Stage On-Site, And Later Reinstall This Side Of Existing 4' Chain Link Fence
Decon Area
Equipment and Material Staging Area
Install 6' High 20' Wide Chain Link Gate With Padlock For Ingress/Egress
Existing 24' Wide By 4' High Chain Link Gate
Furnish, Install, And Later Remove 650' Of Temporary 6' Chain Link Fence And One 20' Chain Link Gate (Contingency)
CHARLOTTE STREET

# Proposed Source Removal

- Area #1 Source Removal Area Approximately 8,000 Square-feet.
- An Average Thickness Of Three (3) Feet of Petroleum-Contaminated Soil To Be Removed.
- Approximately 900 Cubic Yards (1,500 Tons) Of Petroleum-Contaminated Soil To Be Removed & Disposed of Off-site.
- Dewatering of Excavation as Necessary.

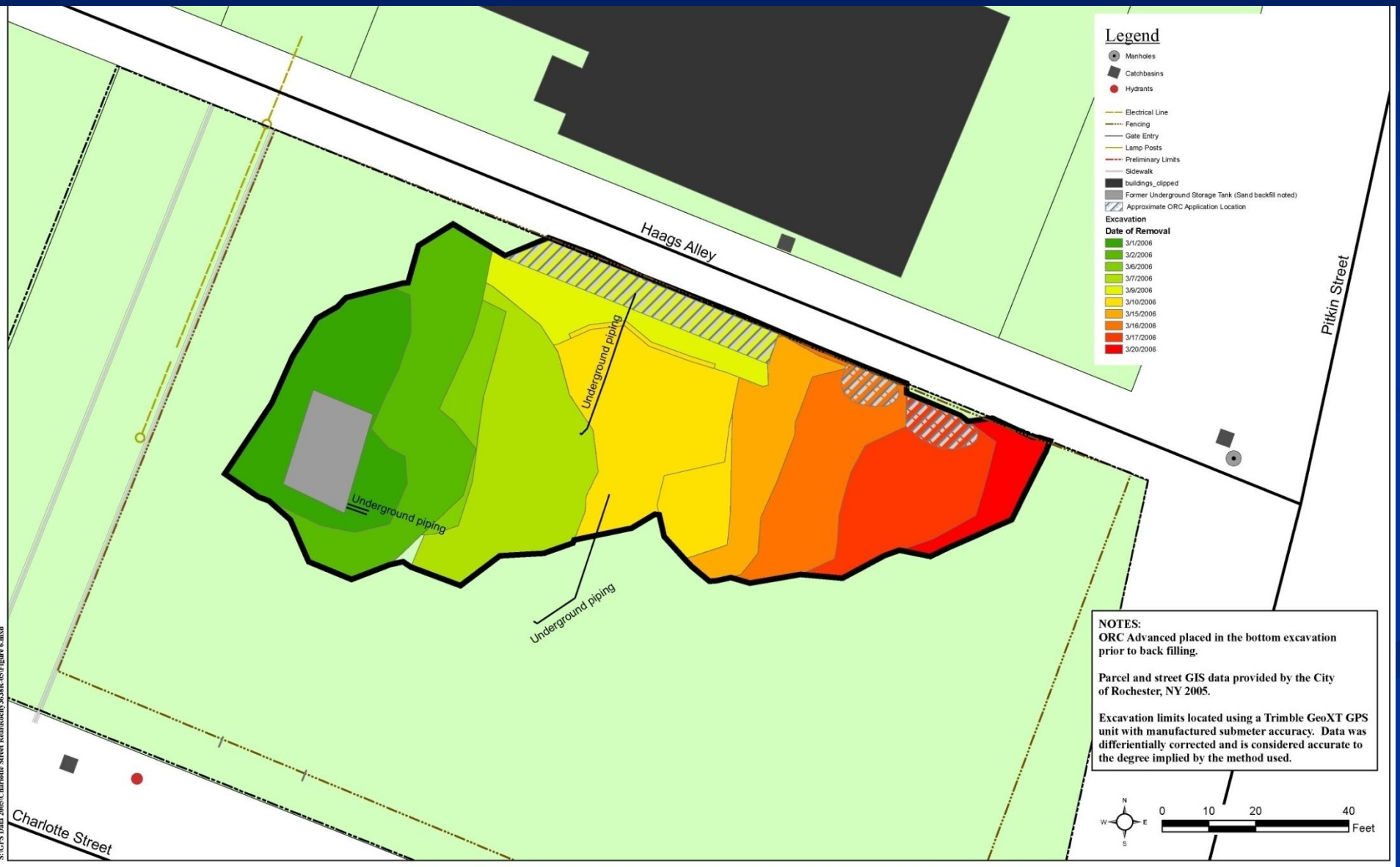

KOMATSU
PC
220
LC
DANGER
www.andersonequip.com
KOMATSU


STOP
KOMATSU

# Source Removal Excavation Results

- A total of 1,257 tons of petroleum-impacted soil, fill and bedrock was disposed of off-site at a permitted landfill as regulated solid waste.
- Cleanup resulted in the removal an approximate 93% of the volume of petroleum-impacted soil.
- Approximately 60 cubic yards (i.e., about 100 tons) of petroleum contaminated soil immediately above the bedrock along Haags Alley could not be removed.
- 125 pounds of Regenesis' ORC Advanced were placed in the bottom of the excavation adjacent to Haags Alley to enhance in-situ bioremediation
- Dewatering of Excavation – 12,000 gallons of mostly groundwater and some stormwater recovered and discharged to sewer.

# Soil Removal Area



# Confirmatory Soil Sampling Program

- Confirmatory soil samples collected from excavation walls in general accordance With NYSDEC Draft DER-10 Technical guidance for site investigation and remediation.
- 22 confirmatory soil samples were collected from sidewalls of the excavation at 18 locations along the perimeter of the excavation.
- Based on olfactory, visual and PID readings, the majority of the excavation sidewalls appeared free of petroleum impact with the exception of portions of the northern sidewall along Haag Alley.
- Confirmatory soil samples were not collected from the bottom of the excavation since the excavation extended to the top of bedrock.

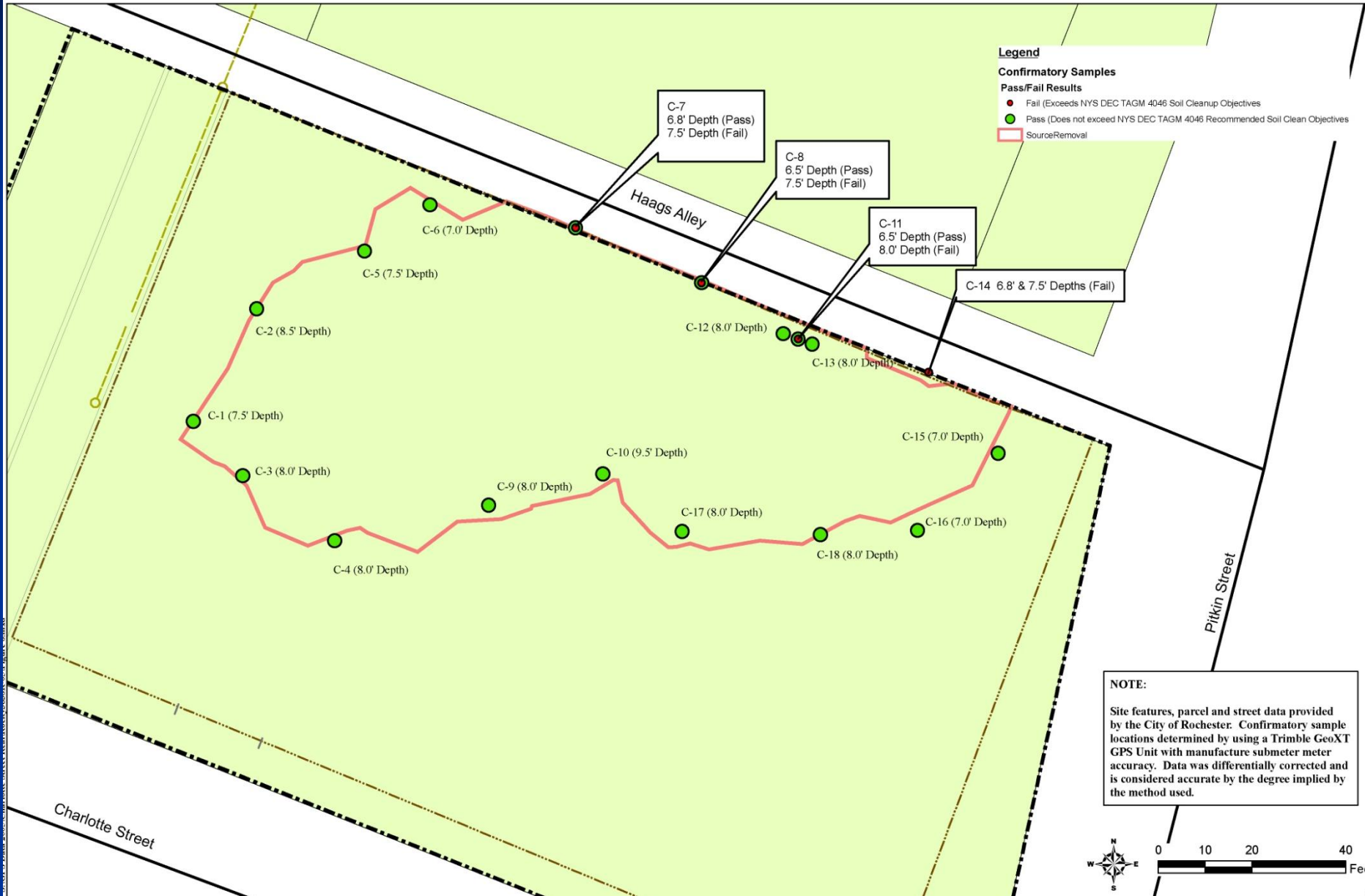
# Confirmatory Soil Sampling Results

- Based on the test results, only one soil sample [Sample 024 from test location C-11 (8.5' BG)] contained individual VOCs that exceeded NYSDEC TAGM 4046 RSCOs.

- Four samples contained total VOC concentrations that exceeded the RSCO for total VOCs of 10,000 ug/kg., and all four samples were collected from the northern wall of the excavation along the right-of-way of Haags Alley.

- The analytical laboratory test results confirmatory soil samples collected from east, west and south walls of the excavation did not exceed RSCOs.

# Confirmatory Soil Sampling



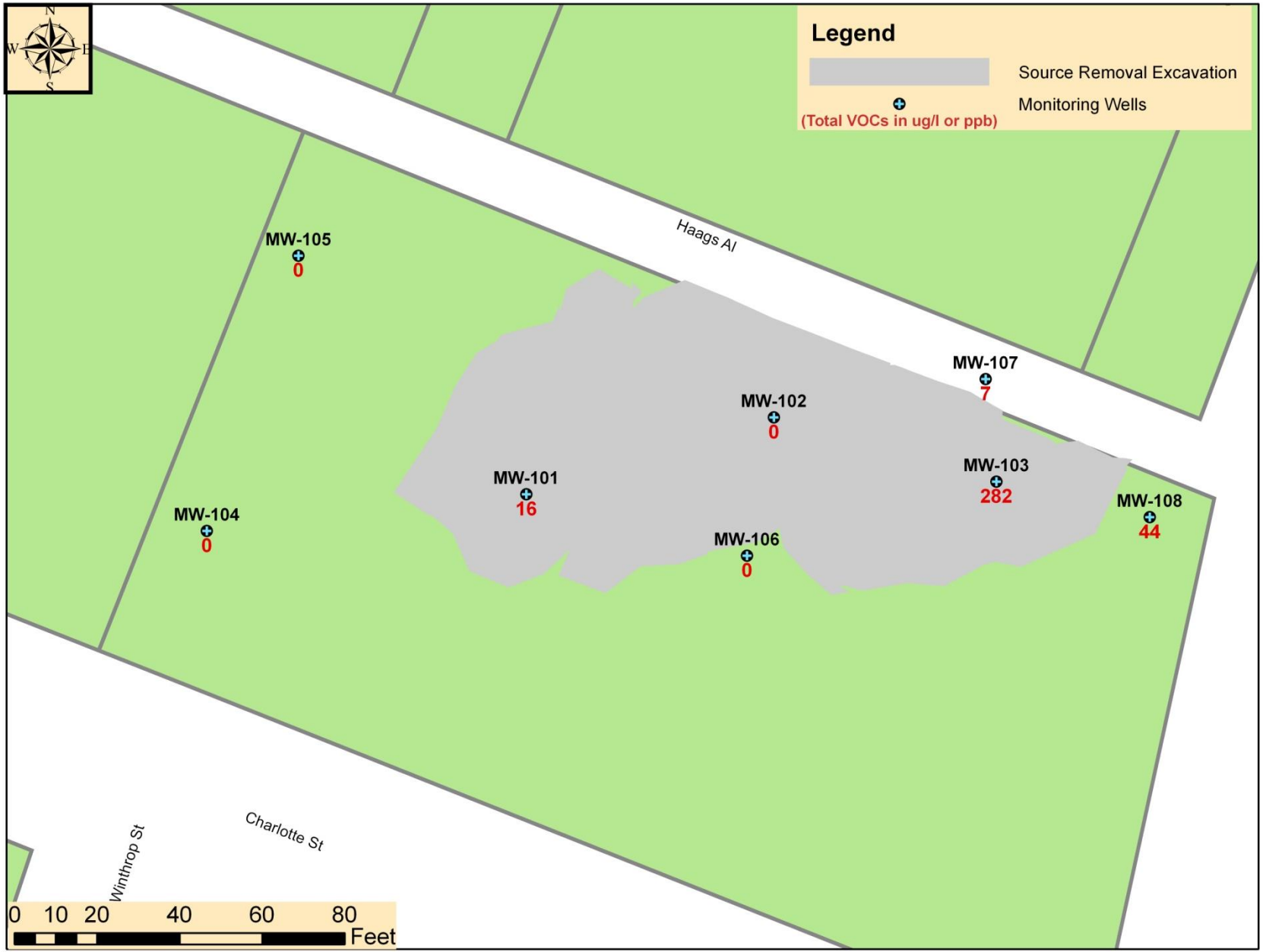
# Installation of Groundwater Monitoring Well Network

- Well Installation
- Well Development & Purging
- Groundwater Sampling & Analysis
- Evaluation of Aquifer Properties

# Monitoring Well Installation & Groundwater Sampling

- Eight overburden bedrock interface groundwater monitoring wells were installed and sampled after completion of the source removal program to evaluate groundwater quality at the Site
- Based on the first round of groundwater monitoring results, VOCs were not detected in four of the eight monitoring wells sampled.
- Total VOCs in the remaining four wells ranged from 7 ug/l to a maximum of 268 ug/l.
- Target VOCs in groundwater in the downgradient portion of the Site have exhibited a 97% reduction in VOCs, indicating that the source removal program was successful in significantly reducing the concentration of target VOCs leaching to groundwater.

# Total VOCs and Napththalene in Groundwater - Round #1
# 80-100 Charlottte Street, Rochester, NY



# Soil Vapor Survey

- In-situ soil gas samples were collected from six (6) locations to evaluate VOCs in soil vapor.

- 15 VOCs were identified in samples; however ,based on site operations and analytical results for soil and groundwater samples, many of the VOCs detected in the soil vapor samples do not appear attributable to the Site.

- Benzene, toluene, and xylenes were present in soil vapor samples and appear attributable to contaminants at the Site. These VOCs were present at concentrations exceeding their respective 75th percentile of indoor levels as referenced in NYSDOH Report (November 14, 2005).

- VOCs are present in soil vapor at the Site at concentrations that appear to warrant institutional controls and engineering controls for future buildings.

# Soil Vapor Sampling Locations

# Recommendations

- Complete four rounds of post-cleanup groundwater monitoring (done).
- Develop an Environmental Management Plan (EMP) to identify, characterize, handle, and dispose or re-use contaminated media encountered during construction or post-development activities.
- Install Engineering Controls
  - Sub-slab soil vapor venting system & associated vapor barrier
- Institutional Controls
  - City has Flagged Parcel in Permit-Based Building Information System

# NYSDEC Spill Closure
# No Further Action Required

**New York State Department of Environmental Conservation**
**Division of Environmental Remediation, Region 8**
**Bureau of Technical Support**
6274 East Avon-Lima Road, Avon, New York 14414-9519
**Phone:** (585) 226-2466 • **FAX:** (585) 226-8139
**Website:** www.dec.state.ny.us

Alexander B. Grannis
Commissioner

June 6, 2007

Mr. Joseph J. Biondolillo
Sr. Environmental Specialist
City of Rochester
Department of Environmental Services
Dept. Of Environmental Quality
30 Church Street, Room 300B
Rochester, New York 14614-1278

Dear Mr. Biondolillo:

**Re: NYSDEC Spill # 0270474**
**80-100 Charlotte Street**
**Rochester (C), Monroe County**

The purpose of this letter is to inform you that the Department has received and reviewed the quarterly groundwater sampling data for sampling events that took place on July 31, 2006 and April 19, 2007. Based on this data, the site work performed to date, previously submitted information and the engineering/institutional controls that will be utilized as outlined in the March 2007 Environmental Management Plan, the Department does not require any additional remedial action take place at this time. This spill has been removed from the Department's active files. However, be aware that this ruling does not preclude reactivation of this case should new information become available and/or an impact to a receptor be discovered in the future.

If you have any questions or comments, feel free to contact me at either the above address or by telephone at 585-226-5438.

Sincerely,

Michael F. Zamiarski, P.E.
Environmental Engineer II
Bureau of Technical Support
Division of Environmental Remediation

cc: Joseph Albert, Monroe County Department of Health

# *End*